

ARP Case Report n° 34: Scrotal Wall Metastasis: An Unusual First Manifestation of Gastric Adenocarcinoma

Caso Clínico ARP n° 34: Metastização da Parede Escrotal: Uma Manifestação Inicial Pouco Comum de Adenocarcinoma Gástrico

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Case Presentation

A 62-year-old male presented to the emergency department with a two-week history of right testicular pain. His medical history included hypertension and prior left inguinal herniorrhaphy. On examination, both testes were within the scrotal sac, with no signs of inflammation or palpable nodules. The only notable finding was a small right hydrocele, confirmed by ultrasound (Figure 1). The patient was discharged with analgesic medication.

One month later, he returned to the emergency department with complaints of right testicular pain and marked bilateral scrotal enlargement, extending to the penile base, which had developed over the past two days. Scrotal ultrasound revealed marked thickening of both scrotal walls, small bilateral hydrocele, and symmetrical testicles with preserved vascularization (Figure 2a, b, c).

To further characterize the findings and exclude potential complications, a pelvic computed tomography (CT) scan was performed (Figure 2d, e, f). The scan confirmed pronounced thickening of the scrotal walls, along with subcutaneous tissue thickening at the penile base (Figure 2d, e). The inner scrotal wall showed contrast enhancement, more prominent on the right, but no fluid collections or other abnormalities were noted (Figure 2d, e). Additionally, a diffuse nodular densification of the greater omentum (Figure 2f) raised suspicion of an underlying metastatic process.

The patient was referred to general surgery for further evaluation. A thoracoabdominal-pelvic CT scan revealed diffuse metastasis (Figure 3b, c, d, e, f), as evidenced by a left supraclavicular lymph node, right pericardiophrenic lymphadenopathies, pleural and subpleural pulmonary metastases, and peritoneal carcinomatosis. The scan also revealed gastric wall thickening and lymphadenopathies in

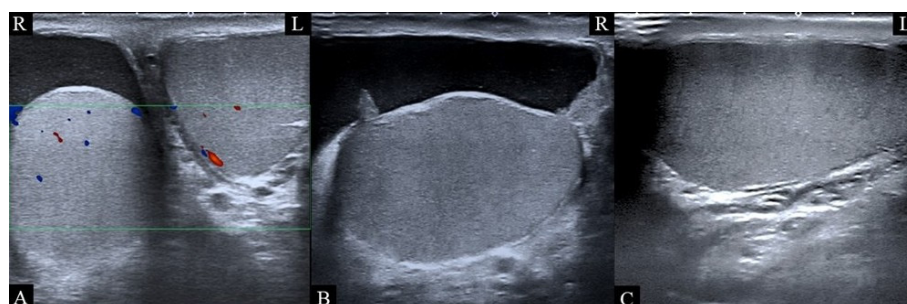


Figure 1 – Testicular and scrotal ultrasound (linear probe). Small right hydrocele (a, b). Symmetrical testicles with preserved vascularization and no identifiable nodules (a, b, c). The scrotal wall shows normal thickness bilaterally (a, b, c). (R - right; L - left).

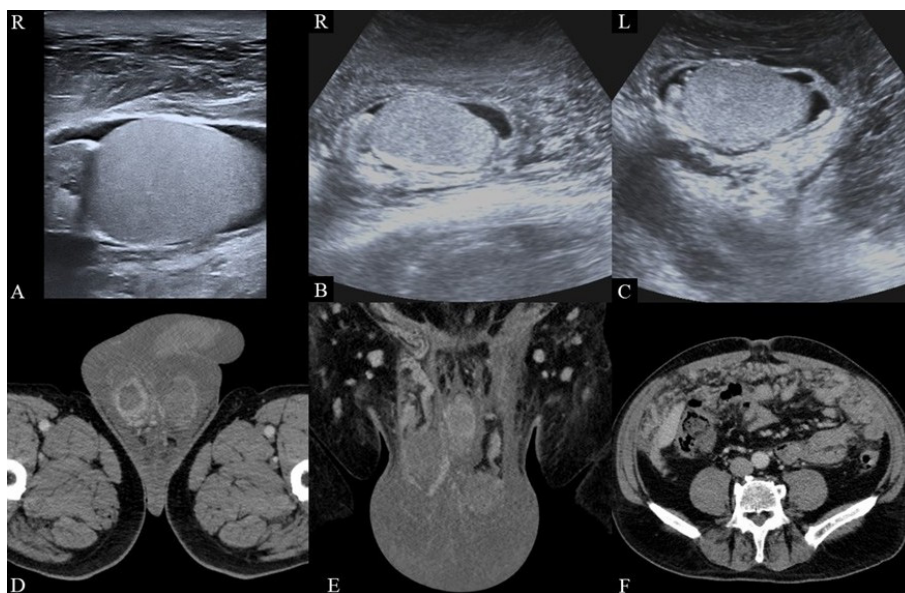


Figure 2 – A, B, C) Ultrasound of the testicles and scrotum with linear (a) and curvilinear (b, c) probes reveals marked thickening of the scrotal walls, symmetric testicles, and a small bilateral hydrocele. D, E) Contrast-enhanced pelvic CT confirms scrotal wall thickening and subcutaneous tissue thickening at the penile base. The inner scrotal wall shows contrast enhancement, more prominent on the right, with no fluid collections or other abnormalities. F) Pelvic CT scan shows findings suggestive of an omental cake. (R - right; L - left).

the region of the lesser gastric curvature raised suspicion of gastric neoplasm (Figure 3a), later confirmed histologically after endoscopy (Figure 3g).

Regarding the scrotal findings, contrast-enhancing thickening of the scrotal wall persisted, although less pronounced than in prior exams, along with a moderate-volume hydrocele on the right. In the absence of other identifiable causes for the scrotal changes, they were attributed to metastatic involvement secondary to the gastric neoplasm.

The patient began palliative systemic chemotherapy with initial disease response, including the complete resolution of the scrotal changes.

The prostate is the most frequent primary source of scrotal metastases, excluding hematological malignancies such as lymphoma and leukemia, followed by tumors originating in the gastrointestinal tract, melanoma, kidneys, and lungs.^{4,5} Several mechanisms have been proposed to explain how primary tumors metastasize to scrotal structures. These mechanisms include lymphatic spread, in which tumor cells migrate through lymphatic vessels to the inguinal or pelvic lymph nodes and subsequently infiltrate the scrotal tissues, and hematogenous spread, where malignant cells disseminate through blood vessels, particularly in tumors with a propensity for vascular invasion. Direct extension from

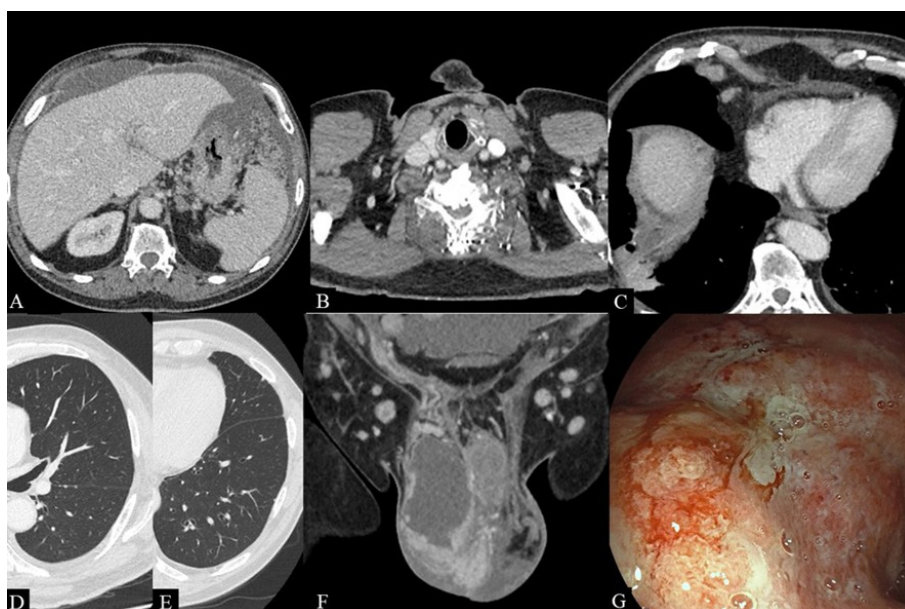


Figure 3 – A–F) Contrast-enhanced thoracoabdominal-pelvic CT images. A) Notable gastric wall thickening and signs of ascites. B) Left supraclavicular lymph node. C) Right pericardiophrenic lymphadenopathies. D and E) Pleural and subpleural pulmonary metastases, respectively. F) Persistent thickening of both scrotal walls, less pronounced than in previous exams, with continued contrast enhancement of the inner scrotal walls and a moderate-volume right hydrocele. G) Upper gastrointestinal endoscopy showing a vegetative and ulcerated neoplasm in the gastric fundus and along the greater curvature of the proximal gastric body, confirmed histologically following biopsy.

Discussion

Metastasis to the scrotum is a rare phenomenon, with the testis being the most commonly affected structure.¹ Scrotal wall metastasis, on the other hand, is exceptionally uncommon, particularly when it presents as the first manifestation of an occult primary tumor, as observed in our case. Even more unusual is metastasis involving the subcutaneous tissue of the scrotal wall while sparing the overlying skin.^{2,3}

tumors in adjacent structures, such as the prostate, bladder, or perineum, can also result in scrotal involvement through contiguous spread. Another proposed pathway is peritoneal seeding, which occurs in cases of peritoneal carcinomatosis, where cancer cells disseminate via the peritoneum and potentially reach the scrotum through a patent processus vaginalis. Iatrogenic spread is also possible, particularly in cases where tumor cells are inadvertently introduced to the scrotal region during medical procedures such as biopsies or

surgeries. Retrograde venous spread, in which tumor cells travel against normal venous flow through connections such as the pampiniform plexus, has also been suggested as a potential mechanism.^{6,7}

In our patient, the exact pathway of metastasis to the scrotal wall remains uncertain; however, the presence of diffuse metastases and signs of peritoneal carcinomatosis strongly suggest that peritoneal seeding is the most plausible route. Clinically, scrotal wall metastases often present as scrotal enlargement, and ultrasonography is the primary imaging modality for evaluation. This technique is essential for distinguishing intra-testicular from extra-testicular lesions, a distinction that is critical as more than 95% of intra-testicular masses are malignant, whereas most extra-testicular lesions are benign.⁸

In cases of suspected scrotal wall metastases, ultrasonography typically reveals soft-tissue thickening or a solid extra-testicular mass.⁴ Magnetic resonance imaging (MRI) may be used in equivocal cases to further characterize extra-testicular lesions, particularly to differentiate benign entities such as lipomas, hematomas, and fibrous pseudotumors.⁹ Computed tomography (CT), although not a primary modality for scrotal

lesion characterization, can be valuable in identifying an occult primary malignancy, as it was in our case. Ultimately, a definitive diagnosis depends on biopsy and histopathological analysis.

In the case presented, the patient exhibited significant scrotal enlargement due to marked soft-tissue thickening. In the context of a subsequently diagnosed gastric carcinoma and widespread metastases, these findings were strongly suggestive of scrotal wall metastasis. This hypothesis was further supported by the complete resolution of scrotal symptoms following systemic chemotherapy targeting the primary tumor.

In conclusion, metastases to the scrotal wall are extremely rare, and their occurrence as the initial manifestation of an occult primary tumor is even more uncommon. Diagnosing scrotal wall metastases in patients without a prior history of malignancy is challenging, as initial ultrasound findings are often non-specific. Therefore, clinical, radiological, and pathological correlations are essential to establish a definitive diagnosis.

Ethical Disclosures / Divulgações Éticas

Conflicts of interest: The authors have no conflicts of interest to declare.

Conflitos de interesse: Os autores declaram não possuir conflitos de interesse.

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Confidentiality of data: The authors declare that they have followed the protocols of their work center on the publication of data from patients.

Confidencialidade dos dados: Os autores declaram ter seguido os protocolos do seu centro de trabalho acerca da publicação dos dados de doentes.

Protection of human and animal subjects: The authors declare that the procedures followed were in accordance with the regulations of the relevant clinical research ethics committee and with those of the Code of Ethics of the World Medical Association (Declaration of Helsinki).

Proteção de pessoas e animais: Os autores declaram que os procedimentos seguidos estavam de acordo com os regulamentos estabelecidos pelos responsáveis da Comissão de Investigação Clínica e Ética e de acordo com a Declaração de Helsínquia da Associação Médica Mundial.

References

1. Lieng-Yi L, Junne-Yih K, TL LA, Yen-Hwa C, Kuang-Kuo C, Pan Chin-Chen, et al. Metastatic tumors involving the testes. J Urol R.O.C. 2000;11:12e7.

2. Loy I, Vong K, Ding S, Yong Z, Kwan J, Tan B. Scrotal wall metastasis from adenocarcinoma of unknown origin, with concurrent extramammary paget's disease - a case report. Case Reports Gulf J Oncolog. 2023;1:67-73.

3. Coussa-Koniski ML, Maalouf PA, Raad NE, Bejjani NA. Scrotal wall metastasis from a primary lung adenocarcinoma. Respir Med Case Rep. 2015;15:77-9.

4. Dogra V, Saad W, Rubens DJ. Sonographic appearance of scrotal wall metastases from lung adenocarcinoma. AJR Am J Roentgenol. 2002;179:1647-8.

5. Dutt N, Bates AW, Baithun SI. Secondary neoplasms of the male genital tract with different patterns of involvement in adults and children. Histopathology. 2000;37:323-31.

6. Leung ST, Chu CY, Lai B, Cheung F, Khoo J. Scrotal wall metastasis as the first manifestation of primary gastric adenocarcinoma. Case Reports Hong Kong Med J. 2014;20:70-3.

7. Hanash KA, Carney JA, Kelalis PP. Metastatic tumors to the testicles: routes of metastasis. J Urol. 1969;102:465-8.

8. Moghe PK, Brady AP. Ultrasound of testicular epidermoid cysts. Br J Radiol. 1999;72:942-5.

9. Cassidy FH, Ishioka KM, McMahon CJ, Chu P, Sakamoto C, Lee KS, et al. MR imaging of scrotal tumors and pseudotumors. Radiographics. 2010;30:665-83.